BAKER SYSTEM
ICE MAKING

BULLETIN NO. SIXTY FIVE

DESIGNERS AND BUILDERS

BAKER ICE MACHINE CO. INC.
OMAHA, U.S.A.

Artificial Ice Made With a Baker System—

A Highly Profitable Business

TO an individual contemplating a business investment the manufacture and sale of pure artificial ice presents one of the most profitable and genuinely satisfactory of all useful enterprises.

Artificial ice making is a business with a very positive future. It is filled with money-making possibilities. The economical advantages of manufacturing ice and physiological qualities of the product have been definitely established. Today the demand for artificial ice is constantly increasing.

Electric light and power plants are commencing to realize the importance of ice making as a by-product. Power now going to waste can be utilized and all that is required is the supplementary ice making equipment.

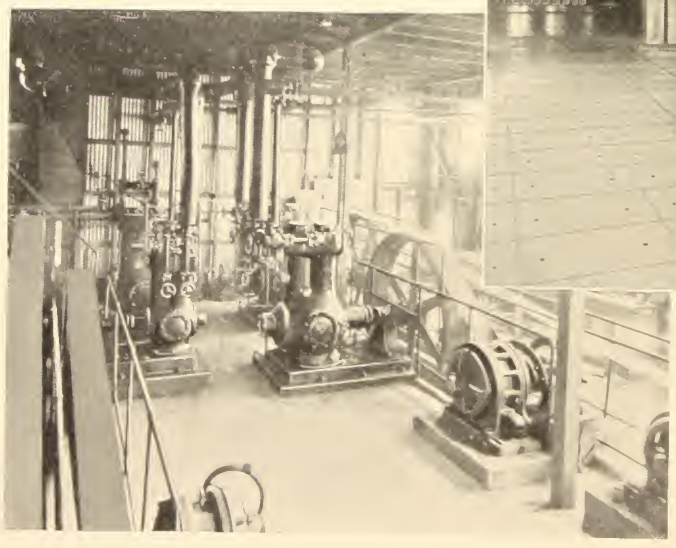
An electric light company in an Arkansas town wanted to curtail their losses during the off-peak period. After a thorough analysis a Baker Ice Making Plant was installed. In five months 3000 tons of ice were made and sales amounted to $20,000. As the total expenses were only $14,000 their investment showed a clear profit of $6,000.

In other towns where the results from the electrical department alone showed losses, Baker Plants have put companies on the profit side.

Its earning power is great, not only in dollars and cents, but also in local good will. Furthermore, a Baker Plant will pay for itself in a comparatively short time.

The demand for artificial ice is constantly increasing. Merchants prefer it to natural ice in refrigerators because it is more easily handled, and because it is clean, thereby eliminating the trouble caused by stoppage of drain pipes and overflowing drain pans which are usually encountered when using natural ice that has been packed in sawdust.

100 Ton Ice Making Plant installed for Long Beach Crystal Ice Company, Long Beach, Calif



The clear crystal ice that is made with the Baker System will satisfy and increase your trade.

The housewife demands artificial ice because she is vitally interested in the health of her family. She is fully awakened to the fact that natural ice, harvested from shallow rivers, lakes, and ponds, is likely to contain a high percentage of bacteria.

Hygienic authorities and pure food experts agree that the bacteria are not exterminated by freezing. Natural ice can be only as pure as the water from which it is frozen.

Many of the most disastrous epidemics have been traced directly to the consumption of natural ice, harvested from improper sources. Articles of food and drink, cooled by such impure ice, naturally become contaminated, and consumers are unnecessarily subjected to ravages of disease.

Realizing these facts, public health authorities have enacted regulations seriously affecting the natural ice business and creating a demand for pure artificial ice. Responding to this demand, human ingenuity has perfected machinery with which clear, wholesome ice can be manufactured without complications at such a low cost that the dealer in natural ice finds it unprofitable to compete.

Not so many years ago artificial ice was made from distilled water, as distilling was practically the only known method of removing air and impurities from water, which is necessary for the manufacture of clear, transparent ice.

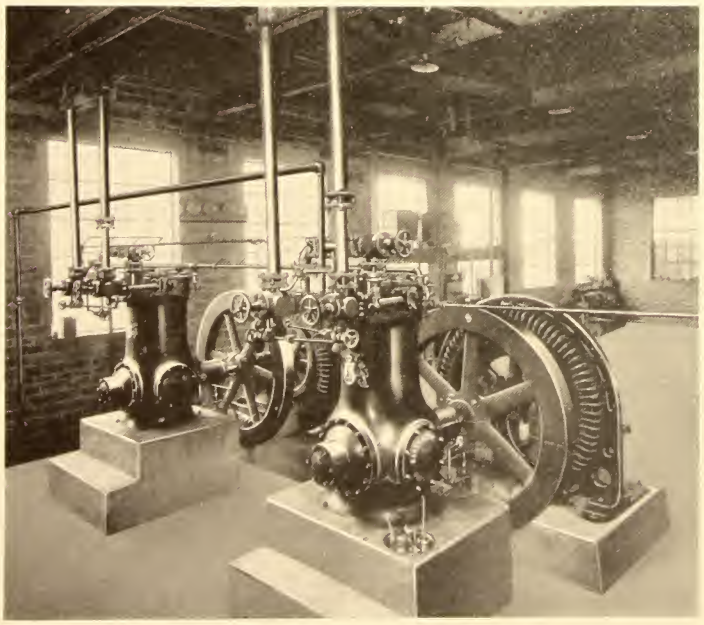
This required a steam-driven plant with expensive equipment, steam condensers, reboiling and skimming apparatus and a perfected system of piping to prevent air re-entering the water after it had been de-aerated. The initial cost of such equipment is usually so high that installations are limited to large cities.

Refrigeration engineers who had studied the matter for some time, finally took a tip from Nature. It was noticed that clear, crystal ice was always obtained from moving bodies of water, while cloudy or opaque ice was found in ponds or stagnant water.

As natural ice forms it first freezes over the top, gradually working down. You will always notice that ice made from moving water is comparatively clear, although not necessarily pure.

In designing the Baker System for the manufacture of raw water ice, Baker Engineers use this principle of water movement. Air is introduced into ice cans at sufficient pressure. This keeps the water in motion, forcing the air out of the water and allowing clear crystal ice to form.

The Baker System of manufacturing clear ice from raw or natural water has eliminated the costly features of the distilled water system, thereby enabling the plant to be operated with any power available.



Two 50-Tons Baker Uni-Flow Compressors Direct Connected to Two 60-Horsepower Synchronous Motors.

Properties of Anhydrous Ammonia

Anhydrous ammonia is used in Baker Plants because it possesses physical properties that enable us to make the greatest quantity of ice with the least expenditure of power. It is easily compressed and condensed, and at low pressures the liquid has the property of evaporating at very low temperatures. On account of its admirable qualities it is used in practically ninety-five per cent. of all ice making and refrigerating plants. Liquid anhydrous ammonia if poured into a glass will absorb heat from the surrounding atmosphere, and boil violently. A thermometer inserted in the liquid will register about 29° F. below zero.

Practical application is made by ice machine manufacturers of this property of ammonia, by causing liquid ammonia to flow through coils within the freezing tank. It will be noticed that water at 32° F. is warm when compared to the temperature of the evaporating ammonia. The heat from the water passes to the ammonia liquid inside of the cooling coils, causing it to evaporate or expand into a gas. The water in giving up its heat gradually turns to ice. Under working conditions each pound of ammonia thus evaporated absorbs enough heat to freeze about two and one-half pounds of water. This ammonia gas is pumped from the coils by the ammonia compressor and after being compressed and condensed is returned to the coils for re-evaporation. In fact the process is continuous, the ammonia being used over and over again.

Baker Freezing System

Baker Plants are made in sizes up to one hundred and twenty tons ice-making per day. Ice is made in uniform sized blocks of any desirable weight from twenty-five up to four hundred pounds each.

Galvanized iron cans, of standard design, are filled with pure water and immersed in a cold brine solution contained within a well-insulated vat, known as the freezing tank. A reinforced steel and wooden cover frame holds the cans in a definite position, and serves as a platform for the tank man.

Special ammonia pipe, made into endless welded coils, and designed to operate on the "Flooded System", with liquid and suction headers, is arranged in the tank between the rows of cans. Within these coils liquid anhydrous ammonia flows and evaporates, producing the low temperature required to freeze the water. A Baker Compressor pumps this evaporated or gaseous ammonia out of the coils, and compresses it to about 180 pounds pressure, after which it is condensed or re-liquified and returned to the coils in the freezing tank. During no part of the freezing process is it possible for the ammonia to get into the ice that is being manufactured as it is confined inside of steel pipes at all times.

Harvesting the Ice

The process of freezing is likewise continuous, and the ice is pulled at regular intervals throughout the day and night. When a block is frozen solid the can is lifted from the freezing tank by means of a hoist, and conveyed on a traveling crane to the can dump where the ice is loosened from the can by the Baker automatic water sprinkling device, and automatically dumped upon the slide leading into the storage room, where it is ready to be delivered to the consumer. The can is returned to the freezing tank and refilled with pure water to be frozen.

Pure Water Needed

Expressed broadly, water which is pure enough for drinking purposes is pure enough for ice making. But while for drinking purposes a moderate amount of air and mineral matter in the water is more or less desirable, for ice making the absence of both is best.

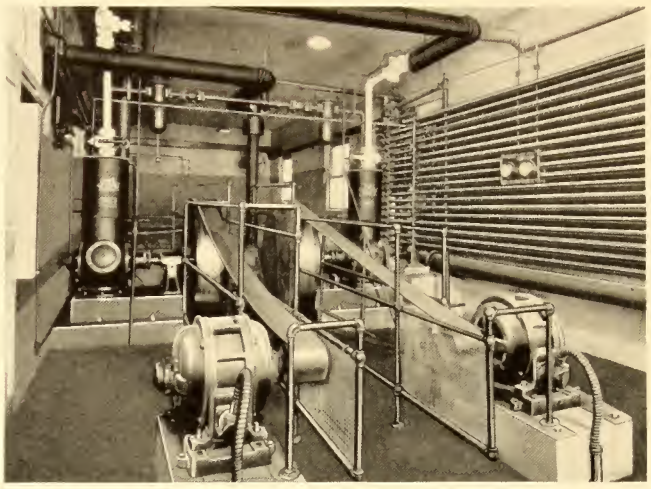
Our experience has demonstrated to us that any reasonably soft water is suitable for manufacturing clear, crystal ice by the raw water method. Hard waters that contain large amounts of alkali, calcium, magnesium carbonates, or other salts in solution will not produce clear ice unless chemically treated.

If analysis shows that water is heavily laden with pathogenic bacteria, and waste matter held in suspension, filtration tanks are necessary.

Ice Storage Room For Long Carry

In order that we may be able to definitely determine the quality of raw water ice that can be manufactured from water at your disposal, we maintain a testing laboratory at our factory. We shall be pleased to freeze any water that may be sent to us, so as to determine by practical methods the exact quality of the ice that can be produced. If a chemical analysis shows that the water is too high in mineral matter, we shall be pleased to advise you if it is possible to treat the water, so that you can obtain ice which will have a high commercial value.

In most cases we advise that 15 to 20 gallons of water you expect to use be sent in a clean metal container. Our analysis is given without obligation to you in any way.



Two Large Baker Slow-Speed Compressors

The Baker Raw Water System

In the manufacture of transparent raw water ice it is necessary to continuously agitate the water during the process of freezing. If this is not done the ice produced will be white or opaque, due to the entrapped air. It is the method of agitation, by forcing air into the water, that has been so simplified and perfected in the Baker System Raw Water Ice Making that causes it to be recognized as the most practical in use today.

A rotary air blower forces purified air at low pressure through distributing pipes into the water which is being frozen, causing continuous agitation. The small air bubbles which form on the surface of the ice attach themselves to the rising air bubbles which are artificially introduced and pass off with them, thus leaving the forming ice clear and transparent. The air distributing pipes are arranged under the cover frame of the freezing tank, and above the ice cans.

For each two cans a Baker Patented Automatic Air Valve is used to control the flow of air to two drop-tubes. When the block is nearly frozen the core water is removed and fresh water added. The drop pipes remain and are frozen into the ice cake. These are later removed by a thawing needle. This system makes a very clear cake of ice with little or no core visible. The removal of the core eliminates the larger portion of salts such as magnesia, calcium, carbonates, and other minerals that may be in the water.

The details of the Baker System Raw Water Ice Making are so simplified by patented devices that the plant can easily be operated with a minimum cost of labor.

An ice plant will not manufacture ice at economical cost unless properly designed.

Too much stress cannot be placed on this point. The heat-transfer duty must be determined and a compressor of proper size selected. The proper amount of cooling coils should be computed. In fact, there are many, many details that must be intelligently worked out according to local conditions, by competent refrigerating engineers before a plant is actually built, if a properly balanced, efficient ice making unit is desired.

Baker Engineers are thoroughly qualified because of many years of experience to lay out a plant that will give maximum capacity at a minimum operating cost.

This service is extended to you without the slightest obligation.

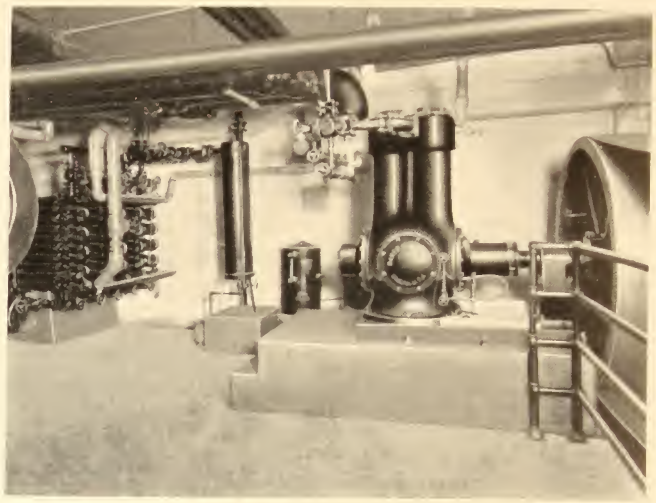
Ice Storage

An ice storage room well insulated and of ample size is a profitable investment because often times during the rush season an ice plant is unable to keep pace with the demand for ice. With a good sized storage room the surplus "pull" during the slack season can be profitably

stored to take care of any unusual demand or temporary shut-down of the plant. Many plants have learned by bitter experience what it means when the reserve supply of ice becomes exhausted in mid-summer, and a plant working to full capacity is unable to meet the demands.

Ice for storage purposes should be frozen slowly with a temperature of the brine at about 18° F. With low temperature brine the ice is too brittle and will crack while being harvested.

Refrigeration for the ice storage rooms is economically furnished by pumping the cold brine from the ice freezing tank through a series of coils arranged on the walls or ceiling, or by direct expansion ammonia coils arranged in the same way.



Baker Uni-Flow Compressor, 50 Tons Daily Refrigerating Capacity. This Compressor Operates at Medium Speed.

Some Expert Testimony from Those Who Know

Tulare, Calif.

Baker Ice Mch. Co.,
Omaha, Nebr.

Gentlemen:—

Replying to your inquiry as to the 40 ton machine that we are operating will say that it has given entire satisfaction in every respect. To quote the expression of our chief engineer, "It is an ice making fool; she doesn't know her own capacity."

Outside of the very few minor repairs that any machine needs, the expense of maintenance has been very light.

Yours respectfully,
TULARE ICE CO.

Grundy Center, Ia.

Baker Ice Mach. Co.,
Omaha, Nebr.

Gentlemen:—

I have a single unit outfit. At the time I bought it you told me that I could hold the temperature on my storage rooms and pull 8 tons of ice every 24 hours.

Well, I started the machine on the present run June 14 at 8 A. M., it is now 9 P. M., Sept. 3, and the engine on the Baker outfit has never stopped one second, day or night. I have averaged 8-ton 800 pounds per day.

I certainly can recommend "The Baker Ice Machine."

Yours sincerely,
H. F. SPRAGUE.

CITY OF
GRAND ISLAND

Water, Light, Ice and
Sewer Departments
Grand Island, Nebr.

June 9, 1923.

Baker Ice Mach. Co.
Omaha, Nebr.

Dear Sir:—

Our Municipal Ice Plant has been a very decided success, this being the third summer of its operation. It has been no expense whatever to the tax payer. Before this plant was installed, the tax payers were paying 70c per 100 pounds for ice delivered and the ice and service received was very, very poor. Municipal plant is now distributing ice to the consumer at 50c per 100 pounds.

Our plant is a 25-ton Baker Raw Water Plant. I also might add that last year during the three summer months that the plant manufactured 28 tons per day without any strain whatever on the machinery. Our plant is in a separate building from the water and light plant and is run by a separate crew of men, there being three engineers and two ice pullers.

During the first two years of operation the plant has made better than 18% above all expenses on an investment of $50,000.00. This includes insurance, interest and depreciation.

Yours very truly,
C. W. BURDICK,
Water & Light Com.

"In answer to your inquiry of recent date concerning our Baker Ice Plant, we take pleasure in stating that it has given us entire satisfaction. We have never lost five minutes during the summer months (due to any fault of the machinery) and we have always pulled more ice than the Baker Ice Machine Co. guaranteed could be produced.

We cheerfully recommend the Baker to anyone."

NASHVILLE ICE,
COAL & LIGHT CO.
Nashville, Ark.

CITY ICE COMPANY

Boston, Georgia

Mr. W. G. Eager,
Baker Ice Mach. Co.,
Valdosta, Ga.

Dear Sir:—

We are very glad to advise you that we have operated your 5⅝x8 heavy duty, long stroke, slow speed machine for some time and are well pleased with it. The simplicity of operation, smooth running and lack of vibration and almost noiseless valves are the salient features which we have noticed over other machines.

We unhesitatingly recommend this outfit to anyone wishing, either an ice or cold storage machine.

Yours very truly,
CITY ICE CO.

CITY OF BLAIR, NEB.

June 9, 1923.

Baker Ice Mach. Co.,
Omaha, Nebraska.

Dear Sir:—

We have what is called a Baker 6-ton machine. We make 6 tons of ice per day beside caring for 100 tons in storage up until real warm weather then we pull from 7 to 7½ tons per day from this 6-ton machine, this we consider a good recommendation.

We have a very good money making proposition. Last year we cleared in the neighborhood of $3,000. Bonds were voted for the construction of our plant and the plant is going to pay off the bonds, the people as a whole are not taxed, the people that use the ice are the ones that are going to pay for the plant.

We are getting just $6.00 less per ton than ice was sold for before we installed the plant. We consider this a nice saving to the community.

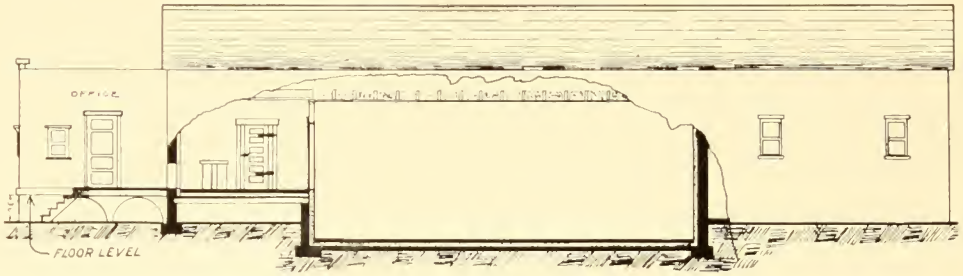
I might add that we have been to very little expense for repair on the plant we have although this is its third year.

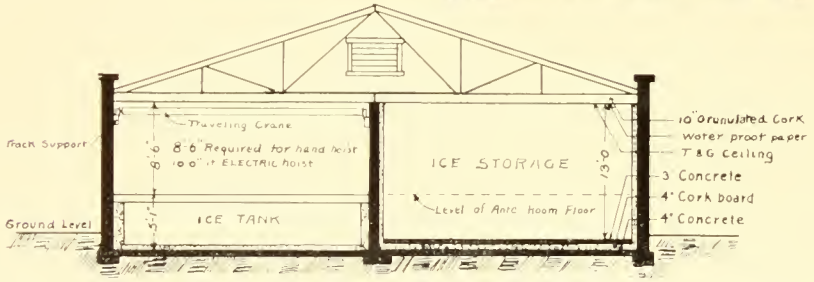
We will be glad to show any one our little plant here any time you wish to send any representative from some other city that is in the market for this size of plant.

Truly yours,
C. E. KRAUSE,
City Clerk.

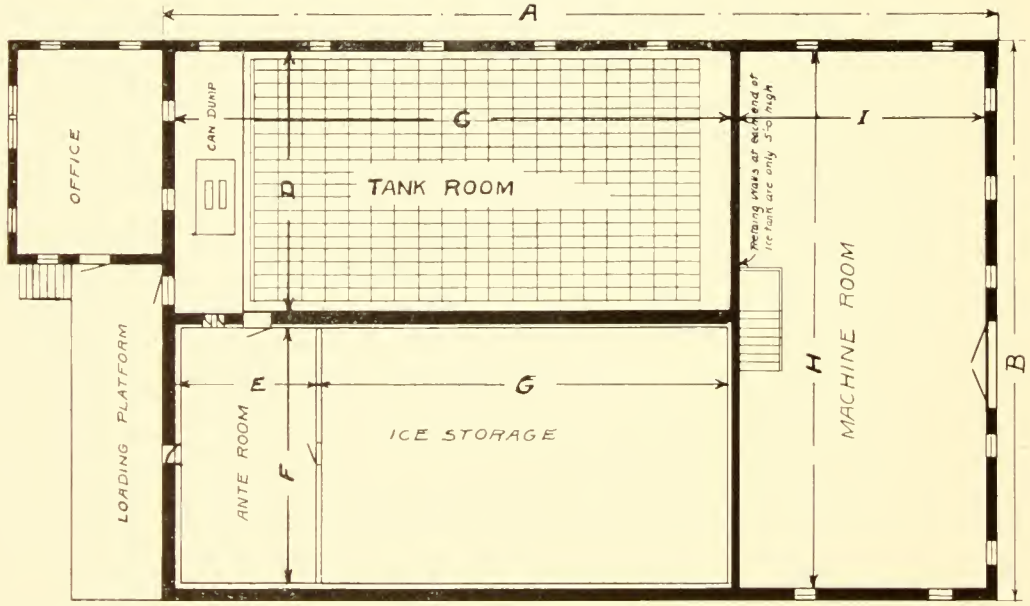
Baker Standard Raw Water Ice Plants

Side Elevation of a Baker Standard Raw Water Ice Plant





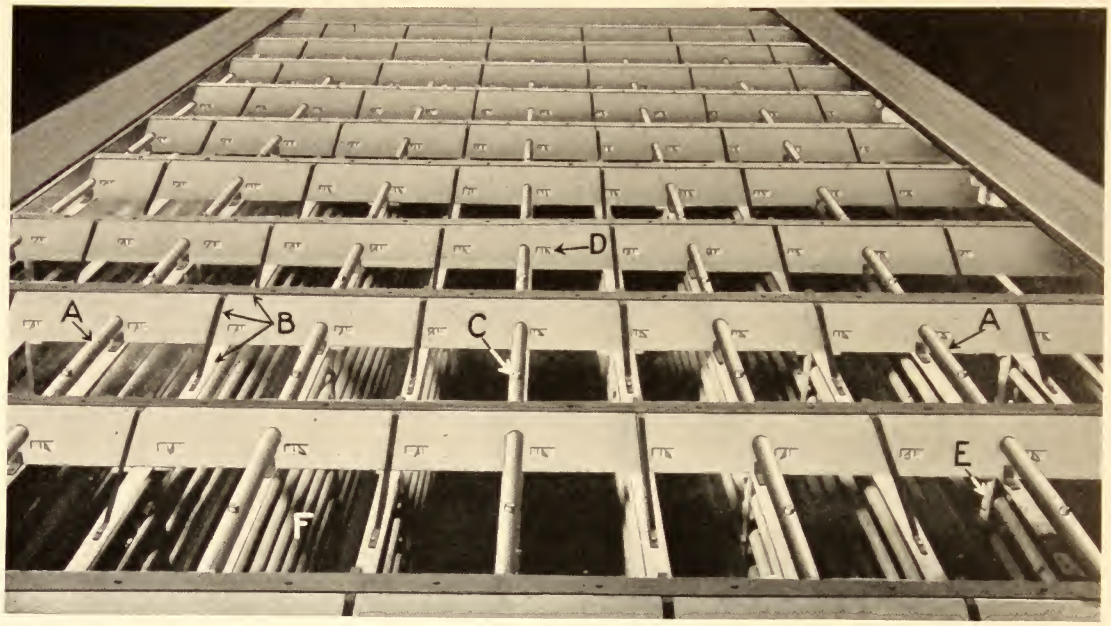
Sectional View showing Insulation and Ice Tank. This standard type of layout provides for enlargement with little difficulty.



Floor Plan of Ice Plant For a size of building suitable for your needs refer to the table.

Approximate Dimensions of Baker Raw Water Ice Plants

Tons Ice Plant Capacity	BUILDING		TANK ROOM		ANTE ROOM & ICE STORAGE			MACHINE ROOM		Tons Storage Capacity of Rooms
	A	B	C	D	E	F	G	H	I	
2	40′	25′	24′	9′-2″	8′-0″	13′-0″	14′-0″	23′-0″	13′-6″	45
3	45′	25′	28′	9′-2″	8′-0″	13′-0″	18′-0″	23′-0″	14′-6″	60
4	45′	25′	28′	11′-6″	8′-0″	10′-6″	18′-0″	23′-0″	14′-6″	50
5	50′	25′	32′	11′-6″	8′-0″	10′-6″	22′-0″	23′-0″	15′-6″	60
6	50′	30′	32′	14′-0″	8′-0″	13′-0″	22′-0″	28′-0″	15′-6″	70
7½	50′	35′	32′	16′-3″	8′-0″	15′-9″	22′-0″	33′-0″	15′-6″	90
10	55′	40′	38′	18′-8″	10′-0″	18′-4″	26′-0″	38′-0″	14′-6″	120
12	60′	40′	42′	18′-8″	10′-0″	18′-4″	30′-0″	38′-0″	15′-6″	140
16	65′	45′	46′	21′-0″	10′-0″	21′-0″	34′-0″	43′-0″	16′-6″	180
20	70′	50′	50′	23′-6″	12′-0″	23′-6″	36′-0″	48′-0″	17′-6″	210
25	80′	50′	59′	23′-6″	12′-0″	23′-6″	45′-0″	48′-0″	18′-6″	260



Cut Showing Construction and Parts of Baker Freezing Tank

A—Air Lateral
B—Iron Supports and Braces
C—Baker Automatic Air Valve
D—Can Holder
E—Coil Support
F—Coils

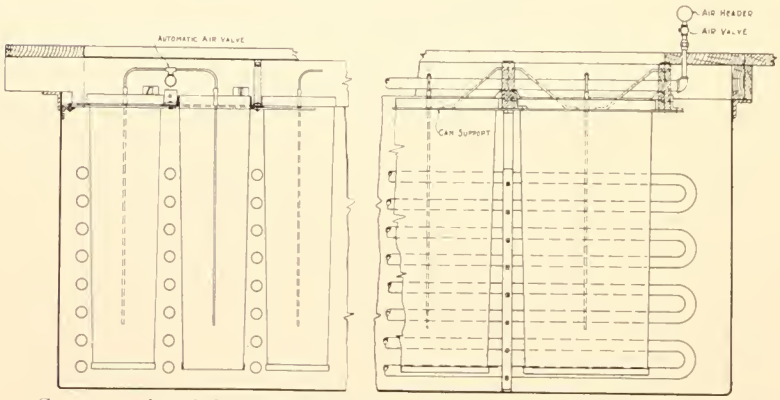
Cost of Plant

We receive many inquiries as to the cost of a plant, and cost per ton of manufacturing ice. Baker Engineers are ever ready to give this information without obligation. It is necessary, however, that we receive the data requested on the enclosed data blank before we can give intelligent replies.

We have hundreds of ice plants in operation throughout the United States, and in foreign countries. We keep in touch with these plants, and are able to advise you regarding your proposition from a business standpoint. The following are a few important questions which arise in the minds of the parties interested in installing an ice plant:

How much ice can we sell? What size plant should we install? What is the average growth of the business during the first five years? The next five years? What size ice storage should we build? What kind of power should we use? Would cold storage prove profitable? Can a plant be operated advantageously in connection with another business?

These questions and many other are put to us every day. Should unusual problems arise in connection with any proposed ice plant, making it unprofitable from a business standpoint, you may feel sure that we will advise against the installation. We depend upon your success for our success.



Cross-sectional Drawing Showing Construction and Operation of Baker Raw Water Ice Making Equipment

MENARD LIGHT & ICE COMPANY
Menard, Texas

Our 10-ton Ice Plant purchased from you about nine years ago, is giving perfect satisfaction.

This Machine is doing as good work today as when first installed.

We can not dispose of the full capacity making about 5-6 tons daily.

We could easily turn out ten tons of Ice in 24 hours if we had sale for same.

Yours truly,
P. ANDEREGG, Mgr.

Baker Uni-Flow Compressor

The Baker Uni-Flow Compressor, also a vertical single acting enclosed type, has been manufactured to meet the demand of some engineers who favor this type. It is of the most modern design and gives maximum capacity with a minimum of floor space and head room.

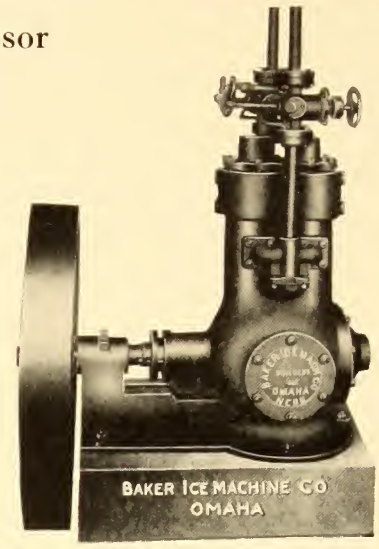
It is made from the best materials possible.

All working parts are interchangeable.

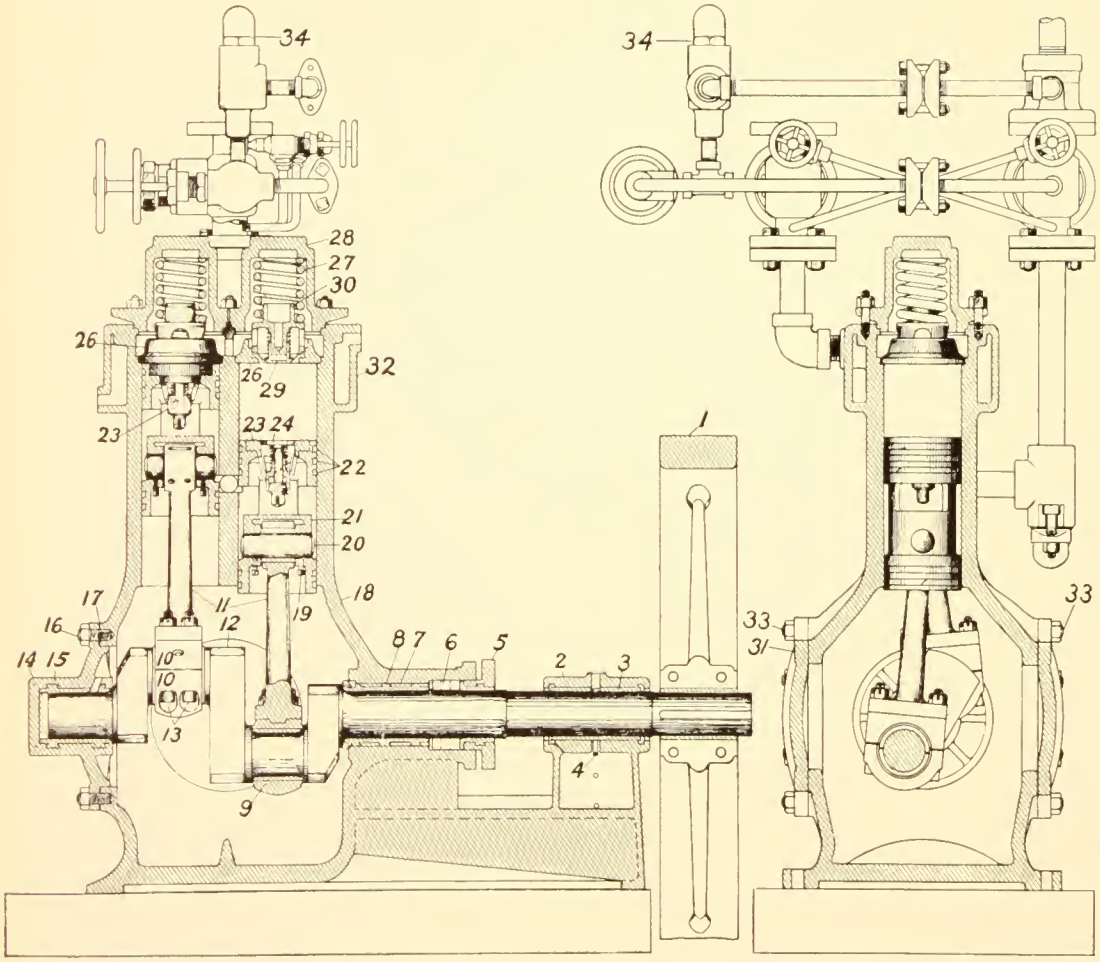
Smaller sizes of Compressors have water jacket, crank case, main bearing and outer bearing all in one casting. The belt pulley is hung on the outside of the outer bearing. In larger sizes a sub-base is used, upon which are mounted the compressor frame and outer bearing.

Provision is made for easy inspection of bearings. Injury to compressor is prevented by a safety head which raises should any foreign material enter the compressor.

All Baker Machines are equipped with automatic safety or relief valves.



Baker Uni-flow Compressor

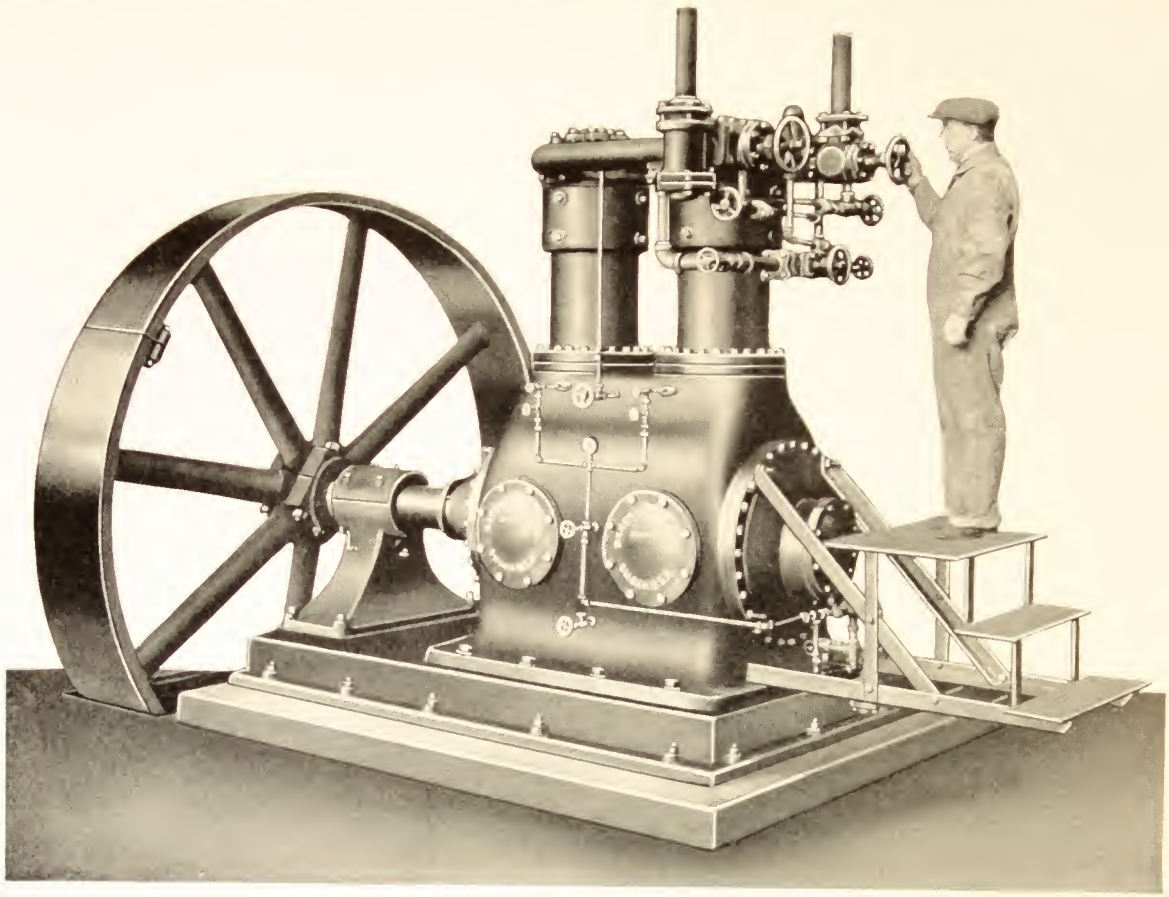


List of Parts

Part No.

1. Flywheel.
2. Outboard bearing.
3. Outboard bearing bushing.
4. Oiling ring.
5. Packing gland.
6. Crank packing.
7. Loose sleeve.
8. Loose sleeve babbitt.
9. Connecting-rod box babbitt.
10. Connecting-rod box.
11. Connecting-rod.
12. Crank shaft.
13. Connecting-rod bolts.
14. Blind bearing.
15. Blind bearing babbitt.
16. Studs.
17. Blind bearing gasket.
18. Compressor frame.
19. Piston pin set screw.
20. Piston pin.
21. Piston.
22. Piston rings.
23. Suction valve seat and guide.
24. Suction valve stem.
26. Safety head with discharge valve seat.
27. Safety head spring.
28. Safety head cap.
29. Discharge valve.
30. Discharge valve guide.
31. Cover plates.
32. Water packet.
33. Cover plate studs.
34. Relief valve.

Cross Sectional Drawing Showing List of Parts for Baker Uni-Flow Compressor



Baker Standard Valve-In-Head Compressor

Sizes Over 60 Tons Daily Refrigeration Capacity

Long life has been built into this slow speed, heavy duty, enclosed ammonia compressor. It is made to satisfy the thoughtful far-sighted engineer who buys in terms of years of service, who appreciates the value of low power cost, low upkeep and who would buy something good rather than something cheap.

Each compressor is carefully balanced and operates with wonderful smoothness. Close-grained semi-steel noted for its tensile strength is used for the compressor frame. Cylinder walls are cast of the same close-grained material and become smoother and harder the longer the plant is in operation.

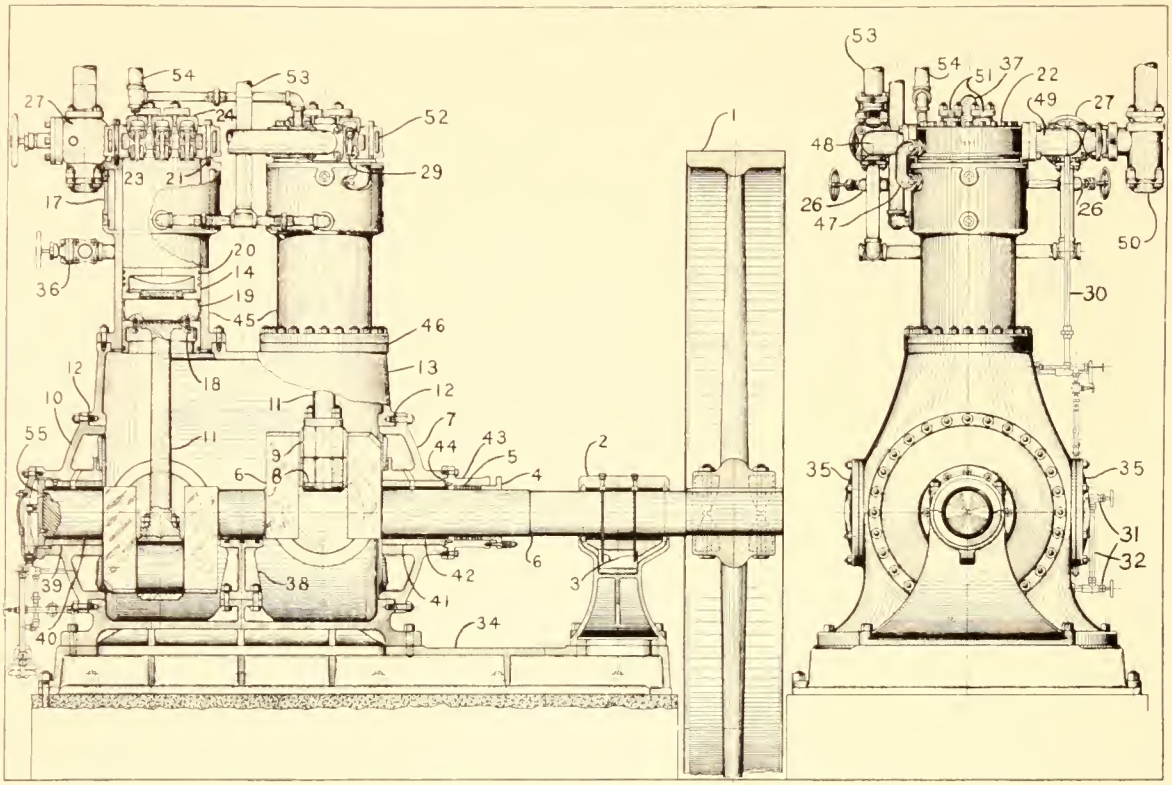
The suction and discharge lines are unusually large, thereby minimizing the friction of the gas entering or leaving the machine. Valves are of the cage poppet type, positive in action, and easily accessible and removable. They are made with removable seats so that, if in time the valves become worn, they can be easily replaced, thus eliminating the necessity of buying an entire new compressor.

A large center bearing inside of the crank case prevents undue stress on the crank shaft, by evenly distributing the load of the downward thrust. This aids greatly in making the machine operate smoothly and quietly.

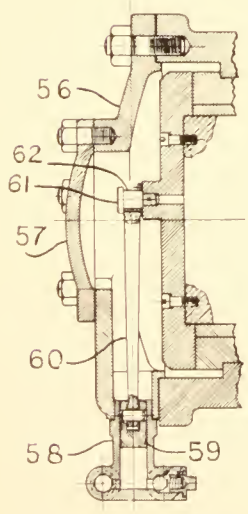
Connecting rods are adjustable so that the clearance of the cylinders can be kept as small as possible. This enables an operator to have the compressor operating at peak efficiency even after many, many years of operation.

Large Baker Valve-in-Head Compressors are equipped with forced feed oiling systems. Oil is pumped from the crank case and distributed under pressure to the pistons and piston pins. The oil lines to each cylinder are provided with sight oil glasses and with clean out plugs.

The compressor operates at a slow speed which is a direct factor contributing to years of wear. In manufacturing these large type compressors, as well as smaller sizes, quality of materials and workmanship have always been uppermost in the mind of the management of the Baker Ice Machine Company.

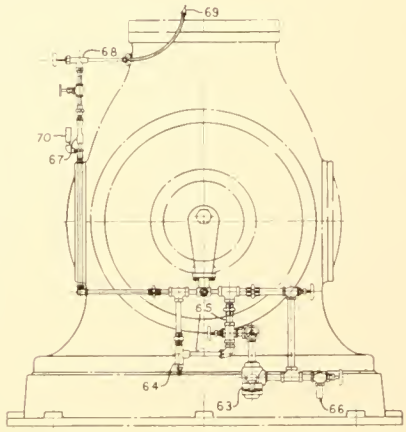


Sectional of Valve-In-Head Slow-Speed Heavy Duty Ammonia Compressor



Sectional Drawing Showing Force Feed Oil Pump Drive.

1. Flywheel.
2. Outboard bearing.
3. Oiling chains.
4. Packing gland.
5. Shaft packing.
6. Crankshaft.
7. Main bearing.
8. Crank pin box bolts.
9. Crank pin box.
10. Blind bearing.
11. Connecting rods.
12. Bearing gaskets.
13. Compressor frame.
14. Piston.
17. Water jacket.
18. Piston pin set screws
19. Piston pin.
20. Piston rings.
21. Cylinder head gaskets.
22. Cylinder head.
23. Suction valves.
24. Valve caps.
26. By-pass connections.
27. Main valves.
29. Discharge valves.
30. Equalizing line.
31. Gage glass valves.
32. Gage glass.
34. Bed plate.
35. Cover plates.
36. Starting by-pass valve.
37. Relief valve.
38. Center bearing.
39. Blind bearing loose sleeve.
40. Blind bearing loose sleeve babbitt.
41. Crank bearing loose sleeve.
42. Crank bearing loose sleeve babbitt.
43. Crank bearing stuffing box.
44. Stuffing box gasket.
45. Cylinders.
46. Cylinder gaskets.
47. Water return bends.
48. Discharge manifold.
49. Suction manifold.
50. Scale trap.
51. Valve cap clamps.
52. Cylinder head water jacket.
53. Water inlet.
54. Water outlet.
55. Thrust washer.
56. Combination blind bearing cover and pump connection.
57. Oil pump cover plate
58. Oil pump.
59. Oil pump piston.
60. Oil pump connecting rod.
61. Oil pump crank pin.
62. Oil pump connecting rod bushing.
63. Oil scale trap.
64. Oil relief valve.
65. Oil by-pass lines.
66. Oil drain & discharging connection.
67. Oil sight glasses.
68. Oil nozzle cleaners.
69. Oil nozzles.
70. Oil pressure gage.



Drawing Showing Force Feed Oiling System Connections

The Reliable Baker Slow-Speed Compressor

Baker Slow-Speed Compressor

The most important part of any ice plant is the compressor. It is the heart of the plant. Upon its faithful operation depends largely the success of a plant.

No compressor we know of will operate with such a small expenditure of power and with such a minimum of attention.

Baker Slow-Speed Compressors are our original design. Upon their faithful performance Baker Compressors have established such a reputation for long wear. Many have been in daily service from fifteen to eighteen years.

The efficiency of our Compressors can be better realized when one remembers that over fifty per cent. of Baker Plants are sold on the recommendation of satisfied owners.

Baker Slow-Speed Compressors are the vertical, single acting type. The two cylinders distribute the working load evenly on the crank shaft, which combined with the heavy well proportioned fly-wheel makes the machine smooth running.

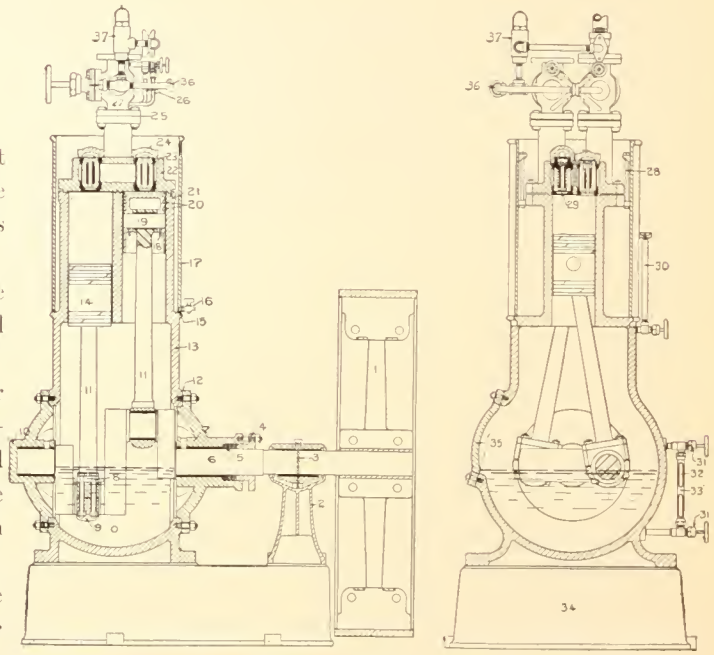
Cylinders are made of close grained semi-steel. They will wear smooth and are free from pits. Crankshafts and connecting rods are made from best possible open hearth forged machine steel.

Valves and valve seats are manufactured from chrome nickel steel. Special ammonia proof babbitt is used for bearings which are hand poured and fitted.

Gray iron, from our own formula, is used for pistons, outer bearing pedestal, water jacket and bed plate.

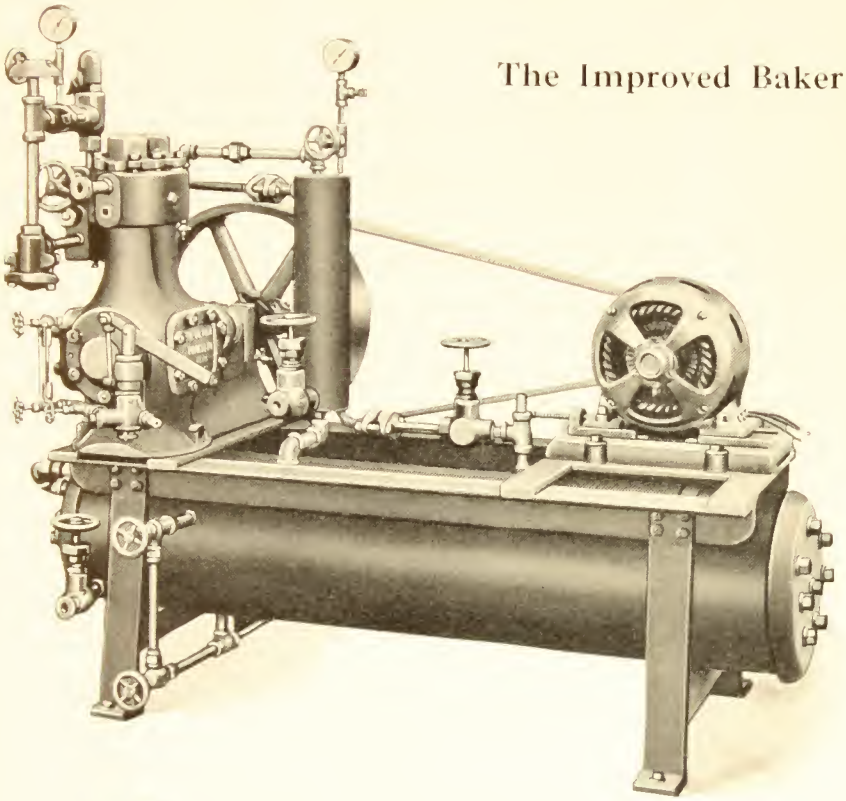
The connecting rod permits taking up boxes and adjustment of clearance. The shaft packing gland is equipped with automatic spring tension, an exclusive Baker feature.

All enclosed bearings work in a bath of clear oil without waste and a perfect system of splash and forced lubrication of cylinders and piston pins eliminates the necessity for attention. The other bearing is equipped with ring oiler.



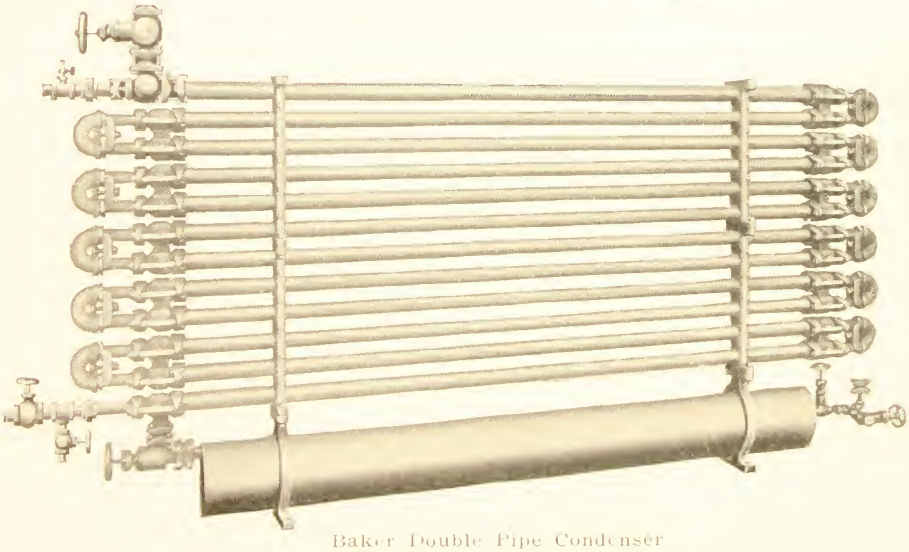
List of Parts for Baker Slow-Speed Compressor

1—Fly Wheel
2—Outer Bearing
3—Oiling Chain
4—Packing Gland
5—Shaft Packing
6—Crank Shaft
7—Main Bearing
8—Crank Pin Box Bolts
9—Crank Pin Box
10—Blind Bearing
11—Connecting Rods
12—Bearing Gaskets
13—Compressor Frame
14—Pistons
15—Water Jacket Gaskets
16—Drain Cock
17—Water Jacket
18—Piston Pin Set Screws
19—Piston Pin
20—Piston Rings
21—Cylinder Head Gaskets
22—Cylinder Head
23—Suction Valves
24—Valve Caps
25—Main Valve Gaskets
26—By-pass Connections
27—Main Valve
28—Water Jacket Bolts
29—Discharge Valve
30—Equalizing Line
31—Gauge Glass Valves
32—Gauge Glass
33—Gauge Glass Guard
34—Bed Plate
35—Cover Plate
36—Starting By-pass Valve
37—High Pressure Relief Valve



The Improved Baker Self-Contained Unit

It frequently happens that an ice manufacturer, who supplies ice to a number of nearby towns, finds it profitable to establish local storage houses. An Improved Baker Self-Contained Unit is ideal to keep ice from melting while in storage. Furnished in sizes up to two and one-half tons refrigeration each 24 hours. If desired full automatic equipment can be used so as to keep an even temperature in the storage room. It is truly a quality plant that will give years and years of service.



Baker Double Pipe Condenser

Baker Double Pipe Condenser

This type of condenser is most commonly used. As the name implies, two pipes are used, one inside the other. Cooling water circulates in the smaller pipe and the compressed ammonia gas between the pipes. As the ammonia is cooled and condensed it flows into the liquid receiver located at the bottom.

Should the water pipes become coated with sediment, the easy removal of Baker Double Pipe Return Bends facilitates cleaning.

BAKER DOUBLE PIPE RETURN BEND
(Patented)

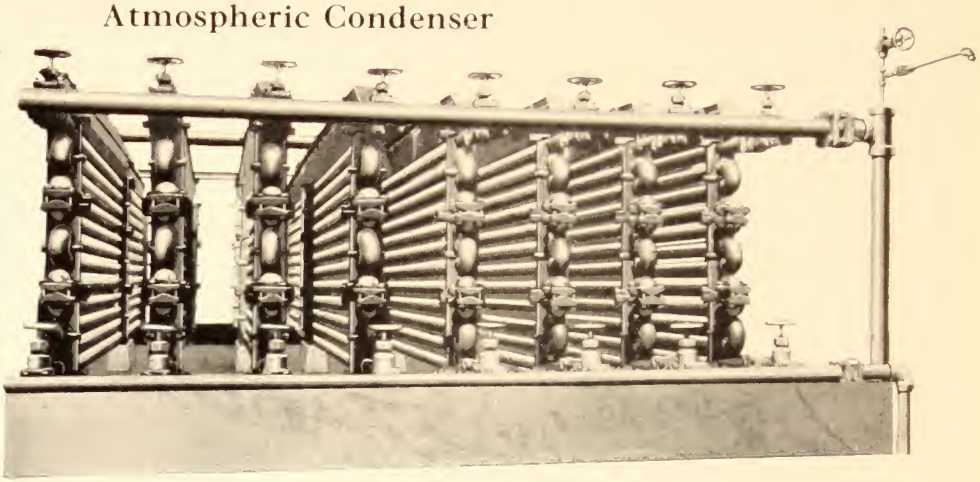
Notice how the water or brine return bend is held together with a single bolt. It can be taken apart with an ordinary wrench. The pressure exerted by the bolt is central, the leverage being so equalized against both pipe ends that an absolutely tight joint is secured.

Atmospheric Condenser

The choice of the condenser is dependent entirely upon local conditions.

Where water is extremely dirty and hard and will deposit scale at a temperature below 100° F. it is considered preferable to use a Baker Atmospheric Condenser. However, this is a matter that the refrigerating engineer must decide after a thorough study of all conditions.

With this type of condenser the cooling water flows directly upon the condenser coils.

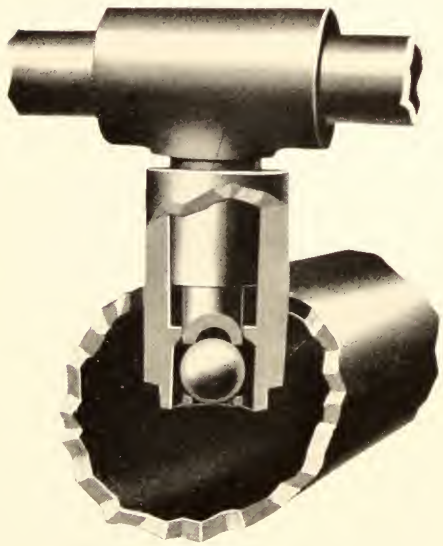


Baker Atmospheric Condenser

Baker Automatic Air Valve

Patented

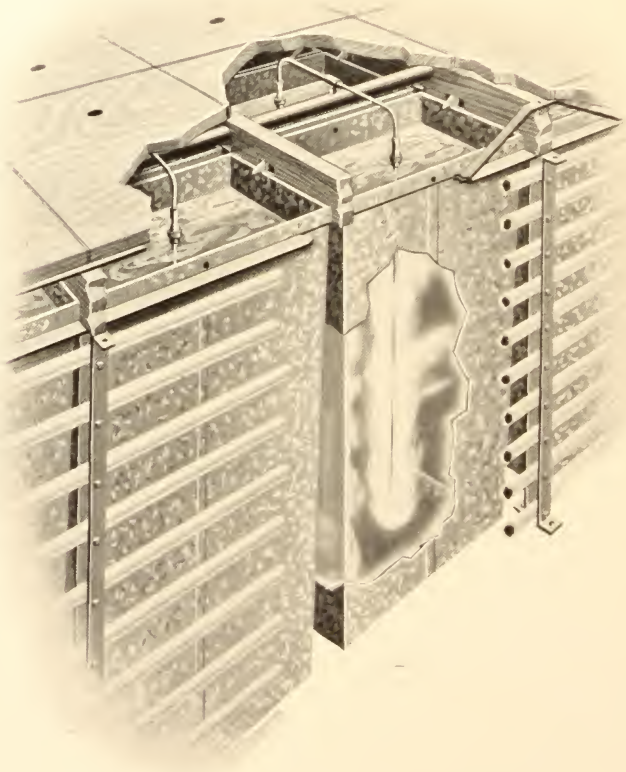
The Baker Automatic Air Valve is without doubt the most rugged, yet simply constructed valve of its kind on the market. It is composed of a tee, a socket with a ball valve, all clearly shown on the accompanying photograph. All parts are made from non-corrosive, brine-resisting brass.



Baker Automatic Air Valve

The ball valve prevents undue waste of air. As soon as the tee of the Baker Automatic Air Valve is raised, the pressure in air line forces the ball upward and holds it tightly against its seat, thus closing the air passage.

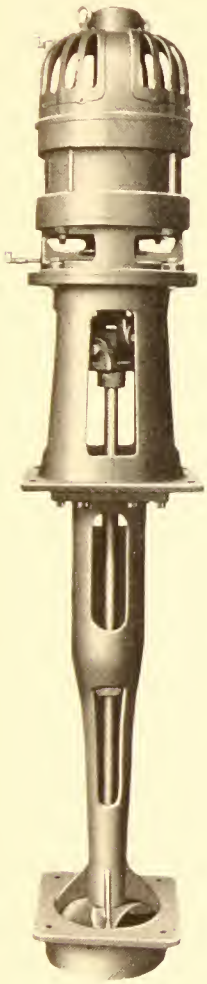
The socket, slightly tapered on the outside, is driven into the air lateral forming a tight joint. The weight of the tee with its drop pipe connections makes an air tight metal to metal joint between the tee and its socket, at the same time pushing down the ball permitting free passage of air to the drop pipes.



Cut showing Baker Automatic Air Valve and Drop Pipes in Operation

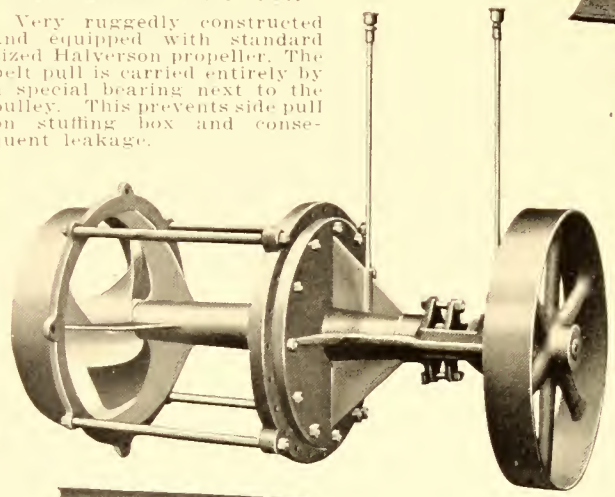
Baker Ice Making Accessories

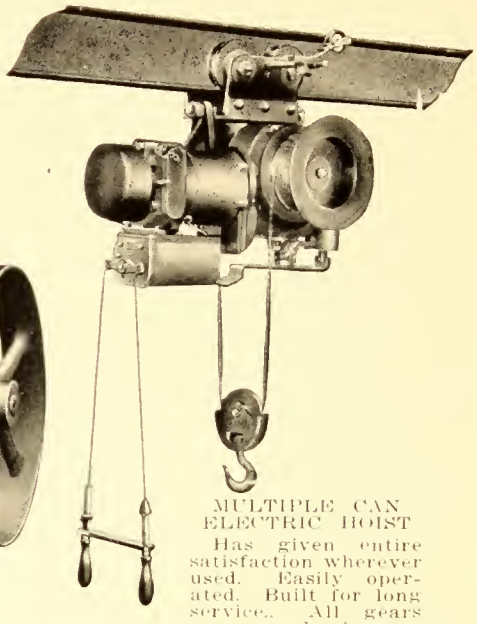
The equipment shown on this page is representative of the high standard that is required in the manufacture of the complete Baker Ice Making Plant.



BAKER IMPROVED HORIZONTAL AGITATOR

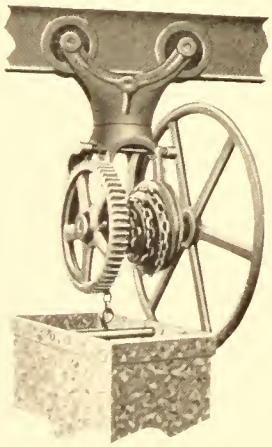
Very ruggedly constructed and equipped with standard sized Halverson propeller. The belt pull is carried entirely by a special bearing next to the pulley. This prevents side pull on stuffing box and consequent leakage.





MULTIPLE CAN ELECTRIC HOIST

Has given entire satisfaction wherever used. Easily operated. Built for long service. All gears are completely enclosed in a dust-proof and moisture-proof case and run in grease. Bearings are self lubricating. Furnished for either direct or alternating current.

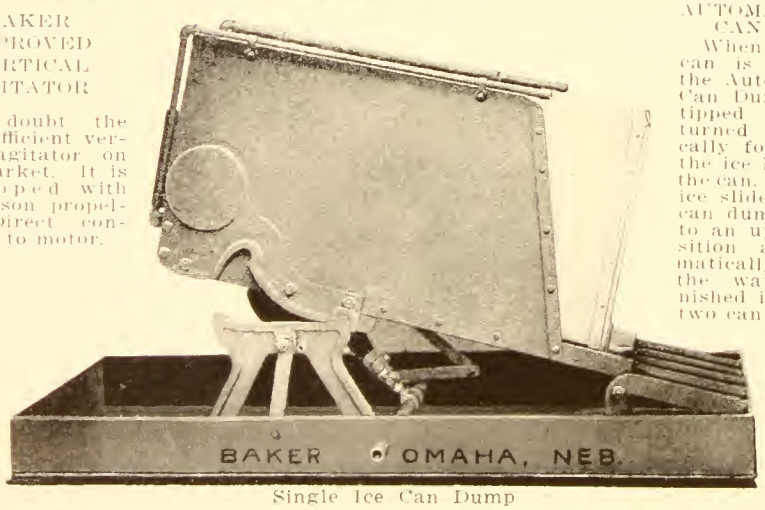


BAKER HAND HOIST AND CONVEYOR

Lifts one can at a time. Swivel permits hoist to be turned in any direction. Hoist is suspended from Steel-L bridge, permitting operator to move load where desired.

BAKER IMPROVED VERTICAL AGITATOR

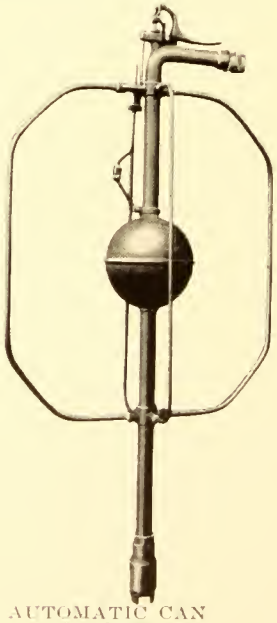
No doubt the most efficient vertical agitator on the market. It is equipped with Halverson propeller. Direct connected to motor.



Single Ice Can Dump

AUTOMATIC ICE CAN DUMP

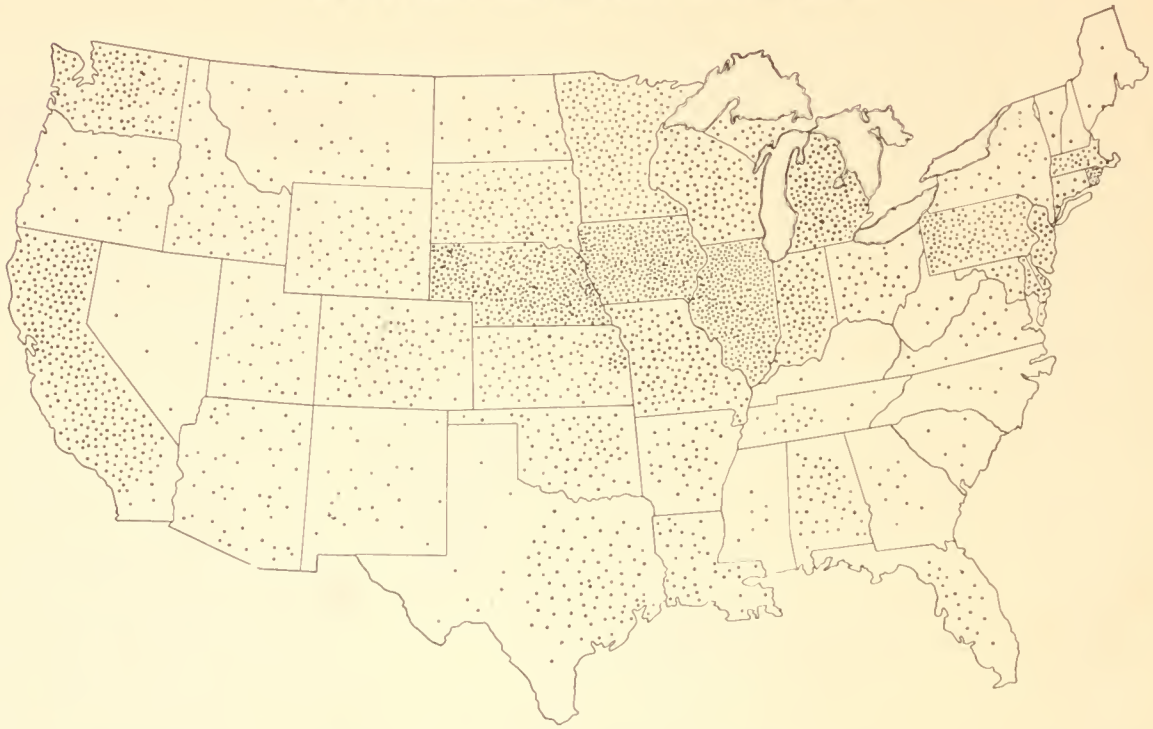
When the ice can is placed in the Automatic Ice Can Dump and is tipped water is turned automatically for thawing the ice loose from the can. When the ice slides out, the can dump returns to an upright position and automatically shuts off the water. Furnished in one and two can sizes.



AUTOMATIC CAN FILLER

Very sturdily built. Water shuts off automatically when can is filled with water.

Each Dot Represents the Sale of a Baker Ice Making or Refrigerating Plant—June 1924



In the manuafeture and sale of ice making equipment we have tried always to give to the world a product worthy of the name "Baker". The selection of raw materials is made with the greatest care—nothing but the very best is acceptable. The building of a complete Baker Ice Plant is as perfect as expert workmen can build with the aid of most modern machinery. This is why we frequently receive reports of Baker Ice Plants delivering from ten to fifteen per cent. greater capacity than guaranteed.

Baker Plants are efficient, durable and economical. They are honestly built by capable workmen, using the best materials.

Baker Plants frequently are not the cheapest on the market: but after all it is the year of satisfactory service one receives from Baker Plants, together with the low upkeep and operating cost, that counts more than the lowest initial cost. It is the long service that proves Baker excellence—what it costs to make ice, the interest, the necessary depreciation, the repairs, the renewals, the cost of operation—everything figured in.

If you will fill out the data blank enclosed with this bulletin Baker Engineers will gladly design an ice plant that will be specifically fitted to your requirements. If a raw water ice plant is desired, we will freeze in our laboratory a sample of the water you intend to use. In this way we can tell exactly the quality of the ice which can be made. This is given without your incurring the slightest obligation.

We are glad to be of service to you; and are only too pleased to give you the benefit of approximately twenty years experience.

BAKER ICE MACHINE CO., INC.

Refrigerating Engineers and Builders of Ice Making and Refrigerating Equipment

OMAHA, NEBRASKA, U. S. A.